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EXAMINER	
PUENTE, EVA Y	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/981,795	SCHETELIG ET AL.	
	Examiner	Art Unit	
	EVA Y. PUENTE	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-19,24 and 26* is/are rejected.

7)☒ Claim(s) *20-23,25,27,28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 1/9/09 have been fully considered but they are not persuasive. Examiner has thoroughly reviewed Applicant's arguments but firmly believes that the cited reference reasonably and properly meet the claimed limitation as rejected.

Applicant's argument – Claimed "starting" and "restarting" refer to different processes in the context of the description of the present application.

Examiner's response – In response to applicant's argument, claimed "comparing, starting, storing, continuing comparing and restarting" steps are an on-going and repeated process. The claim first requires comparing a received bit stream with an expected bit sequence to determine a correlation value for data packet detection. Data extracting begins when the correlation value is greater than a threshold value. This correlation value is stored as a new threshold value. Then, the claim requires repeating the previous steps again (comparing and data extracting) with the new threshold value. It is unclear why the "continuing comparing the bit stream with the expected bit sequence..." is performed during data extraction as assert by applicant. In Examiner's view, all the steps in claim occur in sequential order. Examiner believes that the interpretation of claim is reasonable and correct. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. Applicant is reminded that the Examiner is entitled to give the broadest reasonable interpretation to the language of claims. As explained in the previous office action,

Arnesen discloses packet extraction method comprises the comparing, starting, continuing comparing, and restarting steps. Arnesen did not explicitly teach comparing correlation value with a threshold, storing the correlation value that exceeds a threshold value as a maximum correlation value for use as a new threshold value. However, Persson et al disclose comparison of a correlation value with a variable threshold value, wherein the correlation value is obtained by correlating the received signal with a known bit sequence (206 in Fig. 6). If the current correlation value is greater than the threshold value, the threshold value is updated to the current threshold value. The subsequent correlation value is compared to the updated threshold value (Fig. 4; L40-53). By updating comparator threshold value provide better channel adaptation and decrease the probability of false alarm (Col 3, L21-25). Thus, Persson et al establish motivation to combine with Arnesen's teaching. With respect to claim 15, it appears that applicant argues that Persson et al's false alarm detection only applies to the restarting of data extraction. Examiner disagrees. The data extraction and re-extraction depends on the threshold value comparing with the correlation value. Persson et al introduce updating threshold value to decrease the probability of false alarm. The initial threshold value of Persson et al is applied to data extraction of Arnesen. The updated threshold value of Persson et al is applied to data re-extraction of Arnesen. It is clear that the false alarm detection of Persson et al is implemented in the data extraction and re-extraction of Arnesen. Therefore, it is obvious to one of ordinary skill in the art that data extracted from the previous threshold should be rejected so as to improve quality. Therefore, Arnesen and Persson et al meet the claimed limitation.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 12-15, 18, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable by Arnesen (US 2003/0026201) in view of Persson et al (US 6,587,500).

a) Regarding claim 12, Arnesen discloses a method comprising:

comparing a bit stream derived from a received digital data stream with an expected bit sequence to determine a correlation value for detecting a data packet (1202 in Fig. 12; [0130]);

starting data extraction from the bit stream to indicate that a data packet has been detected (start packet extraction command 1202 and 1203; [0132, a correlation process]);

continuing comparing the bit stream with the expected bit sequence (it is inherent that correlation process is repeated for each packet extraction; 1202); and

restarting data extraction from the bit stream (restarting packet extraction after correlation process; 1203).

Arnesen discloses packet extraction, but failed to teach comparing correlation value with a threshold, storing the correlation value that exceeds a threshold value as a maximum correlation value for use as a new threshold value.

However, Persson et al disclose comparison of a correlation value with a variable threshold value, wherein the correlation value is obtained by correlating the received signal with a known bit sequence (206 in Fig. 6). If the current correlation value is greater than the threshold value, the threshold value is updated to the current threshold value. The subsequent correlation value is compared to the updated threshold value (Fig. 4; L40-53). By updating comparator threshold value provide better channel adaptation and decrease the probability of false alarm (Col 3, L21-25). Therefore, it is obvious to one of ordinary skill in art to combine the teaching of updating correlation value with threshold value as taught by Persson et al in the packet detector of Arnesen. This way the threshold value is updated as the maximum correlation value continuously. By doing so, provide better signal receiving process and reduce probability of error.

b) Regarding claim 13, Persson et al disclose wherein the threshold value is a programmable value (Fig. 4; Col 4, L30-40).

c) Regarding claim 14, Persson et al disclose wherein the correlation value is stored as the maximum correlation value each time data extraction is started or restarted and the new correlation value continuously determined after starting or restarting data extraction is compared with the stored maximum correlation value (Fig. 4; L40-53).

d) Regarding claim 15, Persson et al. disclose wherein data extracted prior to restarting data extraction is rejected (since Persson teaches updating threshold value to reduce the probability of false alarm (Col 3, L21-25), it is obvious that the data extracted

from the previous threshold (i.e, false alarm) should be rejected so as to improve quality (official notice is taken here)).

e) Regarding to claims 18 and 24, Arnesen discloses an apparatus comprising:

a data extraction unit configured to extract data from a received data stream (1203 in Fig. 12);

a packet detector configured to compare a bit stream derived from a received digital data stream with an expected bit sequence to determine a correlation value for detecting a data packet, the packet detector comprising means for comparing the received bit stream with the expected bit sequence (1202 in Fig. 12; [0130]; the correlation process is repeated for each packet [0137]).

Arnesen disclose packet extraction, but failed to teach comparing correlation value with a threshold, a sync-control circuit for storing the correlation value that exceeds a threshold value as a maximum correlation value for use as a new threshold value.

However, Persson et al disclose comparison of a correlation value with a variable threshold value, wherein the correlation value is obtained by correlating the received signal with a known bit sequence (206 in Fig. 6). If the current correlation value is greater than the threshold value, the threshold value is updated to the current threshold value. The subsequent correlation value is compared to the updated threshold value (Fig. 4; L40-53). By updating comparator threshold value provide better channel adaptation and decrease the probability of false alarm (Col 3, L21-25). Therefore, it is obvious to one of ordinary skill in art to combine the teaching of updating correlation

value with threshold value as taught by Persson et al in the packet detector of Arnesen. This way the threshold value is updated as the maximum correlation value continuously. By doing so, provide better signal receiving process and reduce probability of error.

4. Claims 16, 17, 19 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arnesen (US 2003/0026201) in view of Persson et al (US 6,587,500), further in view of Gurney et al. (US 5,619,542).

a) Regarding claims 16, 19 and 26, Arnesen and Persson disclose all the subject matters above except for the specific teaching of an initial timing estimator which received the digital data stream for determining an initial estimate prior to starting data extraction for synchronizing data extraction with data stream symbols.

Gurney et al, in the same field of endeavor, disclose an optimal sampling and timing estimation system, comprising symbol timing estimator (204 in Fig.2); symbol timing decimator (202); and a selector (206). The symbol timing decimator minimizes receiver signal's measured or estimated distortion. It also provides highest possible signal to noise ratio in a digital receiver. Therefore, it is obvious to one of ordinary skill in art to combine the efficient timing estimation system of Gurney et al with the digital receiver of Arnesen. By doing so, provide optimal receiver system with better reception signal quality, lessen power consumption, and reduce production cost.

b) Regarding claim 17, Arnesen and Persson disclose all the subject matters above except for the specific teaching of timing of sampling is continuously tracked by comparing timing of symbols within an oversampled bit stream with actual timing of the

sampling and correcting the timing of the sample if a deviation between the timing of the sampling and the timing of the symbols exceeds a value.

Gurney et al, in the same field of endeavor, disclose an optimal sampling and timing estimation system, where oversampled data and optimal sampling phase are coupled with symbol timing decimator (as shown in Fig. 2). This provides highest possible signal to noise ratio in a digital receiver. Therefore, it is obvious to one of ordinary skill in art at to combine the efficient timing estimation system of Gurney et al with the digital receiver of Arnesen. By doing so, provide optimal receiver system with better reception signal quality, lessen power consumption, and reduce production cost.

Allowable Subject Matter

5. Claims 20-23, 25, 27 and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Y Puente whose telephone number is 571-272-3049. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eva Yi Puente
/E. Y. P./
Examiner, Art Unit 2611

March 23, 2009
/Chieh M Fan/

Supervisory Patent Examiner, Art Unit 2611